The Bologna Process and Fairness in University Education: Evidence from Italy

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Introduction

Italy was one of the pioneers in the process of harmonising the European higher education system. Together with his British, French and German colleagues, Mr. Luigi Berlinguer, the Italian minister for education, signed the Sorbonne Joint Declaration in 1998. In 1999 the Italian university system embarked on the *Berlinguer reform* that transformed the traditional "unitary one tier" courses scheme, in which four–six year degree courses were the only option at a university level, into a "unitary two-tier" model whereby all students enrol in a three year degree course and can subsequently enrol in a one or two year masters degree. Although the Bologna process was meant to foster student mobility and employability in the European context, in Italy the reform brought a deeper transformation of the educational system and went way beyond the Bologna declaration. However, the process of the reform was far from smooth. Due to political instability in the country, the reform was realised and implemented in a short period of time and met with considerable opposition in the academic community. A rather vast body of literature has attempted to evaluate the effect of the reform and has revealed a number of positive trends following the reform. As the reform took place during a period of rapid expansion of tertiary education in Europe, it is not easy to isolate its effects. However, aggregate data suggest that the reform had a major impact in terms of the enrolment rate in the years following 2001: government data show that the number of graduates doubled from 2001 to 2006. Istat (National statistical institute) reports a reduction in the early drop-out rate from 2001 to 2004 (Istat 2006). Cappellari and Lucifora (2009) find evidence of a higher rate of access to university, especially for low income and talented students. D'Hombres (2007) and Di Pietro and Cutillo (2008) show a reduction in drop-out rates following the reform, after controlling for a number of variables that could have influenced the drop-out choice. In a recent study Brunori, Peragine and Serlenga (2012) show a significant improvement in the Italian university system in terms of equality of access opportunity after the reform. However, Brunori et al. (2012) conclude that the long-term effects of the reform were less clear, because although all the inequality of education opportunity measures estimated showed an improvement immediately after the reform (2001), one third of them showed a reduction in equality of access to higher education in Italy between 2001 and 2004. Moreover, after 2004 a persistent decline in the enrolment rate may be considered a symptom of the increase in inequality of opportunity.

Basic trends in aggregate data

Figure 1 reports the number of students enrolled in the first year of university over the number of college graduates the year before (*enrol/col grad ratio*). The large increase recorded between 2000 and 2004 is followed by a similar reduction in the following six years. The data shows a similar decline in the 1990s, although this decline was in relative rather than absolute terms. In the same period there was a sharp increase in the number of college graduates: the number of upper secondary school students over the number of 19 year-olds (*col grad/19* cohort ratio in Figure 1) accelerates dramatically from the early 1990s to the end of the 1990s. The challenge in the 1990s was to get a sufficiently large share of college graduates enrolled in university, given that the number of college graduates was quickly increasing. This goal was essentially achieved, as shown by the third ratio number of enrolled over number of 19 year-olds (*enrol/19 cohort*) which increased over the entire period. After the reform the number of college graduates remained stable and the enrolment rate declined both for college graduates and the 19 year-old cohort.

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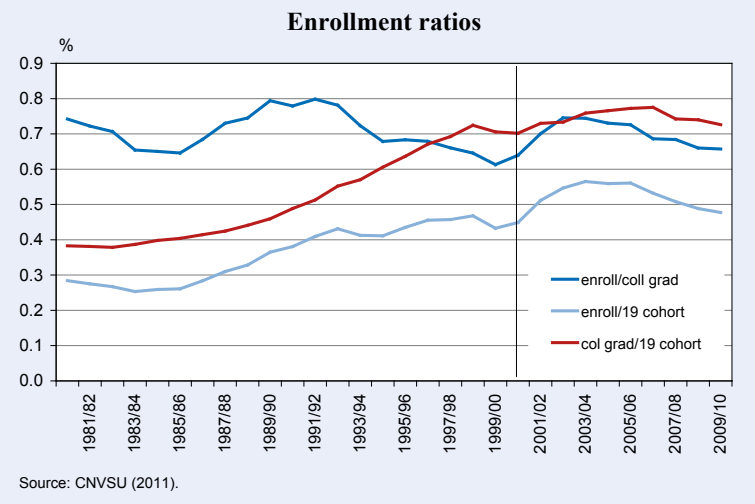
Figure 1



Source: CNVSU (2011).

Below we propose an analysis of the reform from the point of view of equity: more specifically, we estimate inequality of opportunity in access to university in Italy between 1995 and 2007 and show that inequality of opportunity declined immediately after the reform, but subsequently increased again.[4]

Inequality of education opportunity

We propose to track access to university before and after the reform, with a focus on inequality of educational opportunity (IEOp hereafter). Firstly, let us define our concept of the equality of educational opportunities. Following on from the recent economic literature on equality of opportunity (Fleurbaey 2008 and Roemer 1998), we model access probabilities as a function of two kinds of variables: variables beyond individual control (called circumstances) and variables of responsibility (called effort). We define IEOp as that portion of inequality in the probability that can be attributed to circumstances beyond individual control and we look at the change in IEOp over time. We are aware that it is not possible to control for all possible sources of change in IEOp; hence, our exercise may not be strictly considered a policy evaluation of the reform. It should be seen instead as an attempt to understand whether the positive effect of the reform vanished in a decade.

To operationalise the concept of IEOp, the first step consists of dividing the possible factors influencing university access into circumstances and effort. In principle, circumstances are all variables that affect individual outcome, but are not direct or indirect effects of choices. Different characteristics may be considered as fair or unfair sources of inequality depending on the subjective or collective normative beliefs. Race and socioeconomic background are largely agreed sources of unfair inequality; many believe that inequalities due to innate ability, on the other hand, which is definitely a characteristic beyond individual control, are morally legitimate.

Defining a domain for responsibility is particularly complex in the case of education for two main reasons: i) education is a fundamental way of obtaining labour market opportunities, ii) most education takes place in the early years, when individuals have a limited understanding of the consequence of their choices. Supporters of the first argument underline the role of education as an instrumental good: skills acquired in school and university produce income opportunity in the future. Equality of opportunity in the labour market should therefore require full equality in education (Howe 1989). However, if education is clearly a source of opportunities on the one hand, it is itself the result of circumstances and choices on the other, so this paper considers access to tertiary education as an end, and not a means. The second issue challenges the idea that young adult students can be considered responsible for the choice they make. While there is a general consensus that children cannot be held responsible for their choices, it seems instead plausible to hold individuals responsible for their choices at the age of around 19 years.[5]

Model and data

We measure equality of opportunity in access to tertiary education by looking at the conditional probabilities of access to university for individuals with different circumstances. As discussed above, the outcome is determined by two kinds of variables: circumstances and responsibility variables, where circumstances are all observable variables beyond individual control like gender or socioeconomic background. Responsibility vari-

[4] Hence we update our previous analysis (Brunori et al. 2012) by exploiting a new wave of the Istat dataset on upper secondary graduates.

[5] See Trannoy (1999) and Brunori et al. (2012) for a discussion.

Table 1

Ex-ante and ex-post IEOp measures

	1998	2001	2004	2007	2010
Ex ante	0,289	0,333	0,275	0,266	0,285
Ex post	0,311	0,356	0,304	0,287	0,304

Source: Authors' elaboration on Istat IIPD.

ables are summarised by a proxy that we will call "effort". IEOp represents total inequality as a share of the probability of accessing tertiary education due to circumstances. The population of students is divided into groups characterised by identical circumstances (types), and each type is sub-divided into groups of students that exerted the same degree of effort (tranches). To measure IEOp, we build a matrix of probabilities, where the probability of accessing university for students in the same type and same tranche is reported in each element of the matrix. There are also at least two approaches to measuring IEOp in distribution: ex-ante and ex-post. The former focuses on the idea that all inequality due to effort is unproblematic. Ex-ante IEOp is obtained residually: in a first step all inequality due to effort is eliminated (within type), and the residual inequality is subsequently measured. Ex-post IEOp is obtained directly, by measuring for all degrees of effort (hence tranche by tranche) the difference in probabilities due to circumstances. As discussed in Fleurbaey and Peragine (2013), these two approaches differ and although they generally return consistent estimates, they could, in principle, move in opposite directions over time.

To measure IEOp in tertiary education we first define an outcome of access to tertiary education for an upper secondary school graduate. We then identify the variables beyond individual control (circumstances): gender, family socioeconomic background (based on parental education), region of residence (Centre/North, South), and educational attainment at the age of 15 (high, low grades).[6]

Our proxy for effort is related to the grade of the upper secondary final exam. We recognise that this grade cannot be considered a proxy for how hard a student tried, as grades are affected by a student's circumstances. Therefore, like Roemer (1998), we believe that such a measure of effort is only suitable to compare individuals belonging to the same type, as they are all subject to the same circumstances. In order to make it comparable for individuals of different types, we define effort as the rank in the type specific distribution of observed effort as an ordinal and inter-type comparable measure of effort. Hence, two individuals are declared to have exerted the same degree of effort if they sit at the same position in their respective type specific grade distribution.

In order to implement our measures we use data from "*Indagine sull'Inserimento Professionale dei Diplomati*" (IIPD), a survey published every three years by the Italian National Bureau of Statistics (Istat). The survey focuses on the transition from upper secondary school to work and university of a representative sample of Italian students, who completed upper secondary school. We estimate IEOp in five waves: 1998, 2001, 2004, 2007, and 2010, each containing information on students that completed upper secondary school three years previously. The survey data includes information on students' socioeconomic background, school curricula and access to both university and labour market after upper secondary school.

Discussion

Our results are in line with what we found in our previous analysis.[7] Table 1 shows the ex-ante and ex-post IEOp measures. The two measures quantify inequality in the probability of enrolling in university, the former between types and the latter within tranches. In both cases inequality is measured by the Gini index.

The ex ante and ex post IEOp show similar trends: they significantly drop in 2004, slightly decrease from 2004 to 2007, and increase somewhat from 2007 to 2010. In fact, both the ex ante and the ex post measures returned to their 1998 level in 2010. Hence, our evidence shows that the 2001 university reform had only a short-term effect in terms of IEOp in the access to tertiary education. This may be due to the fact that the reduction of

[6] We consider the educational attainment at the age of 15 a very relevant predictor of the future success in education. We also consider it as a circumstance beyond individual control because due to circumstances and individual choices made at an age in which pupils cannot be held responsible for their decisions; see Brunori et al. (2012) for a discussion.

[7] Estimates differ in absolute terms from the measures presented in Brunori et al. (2012) because in that case we were controlling for demographic change across time.

inequality might be linked to a number of side-effects of the 2001 university reform such as the sharp rise in the number of university degrees awarded (the number of courses offered by Italian university totalled 2,444 in 2000 and 3,234 in 2001), the spread of university locations across Italy (the number of cities with an university grew from 93 in 1995 to 146 in 2001) and the reduction in the workload required to obtain a degree (Bratti et al. 2007). Given that enrolled rates among students from well-off social background was already very high prior to the reform, the effect of an increase in university degrees and/or locations might have acted as an incentive for students from less advantaged social backgrounds, lowering IEOp in 2004.

Why did the reform have such limited effects? One possible explanation is that, at the time that the reform was introduced, there were high expectations of the opportunities that the new system may bring. Many students who had completed upper secondary school decided to enrol in higher education expecting high returns for a shorter investment in human capital. However, within a few years students and parents learnt that there were lower returns from the new shorter degrees and the enrolment rate declined as a result, especially for less advantaged students. Two facts are in particular consistent with our interpretations: (i) the large percentage of graduates of 3 year courses that enrolled in two-year master degrees varies across universities, but is generally above 60 percent; (ii) growth in the rate of youth unemployment is shown to be even higher for university graduates than for students that completed upper secondary school among individuals aged under 35 years old.

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